1	<u>CLAIMS</u>
2	What is claimed is:
1	1. A gateway for exchanging IP frames with remote IP devices over a
2	communication link to a frame switched network, the gateway comprising:
3	a wide area network interface coupled to the communication link for exchanging
4	the IP frames with the remote IP devices;
5	a local area network interface for receiving outbound IP frames from each of a
6	plurality of IP clients, each outbound IP frame comprising a local IP header and
7	payload:
8	the IP header comprising:
9	an IP client socket comprising a client IP address and a client port
10	number of the IP client; and
11	a destination socket comprising a remote device IP address and a
12	port number of a remote IP device; and
13	a router module coupled between the local area network interface and the wide
14	area network interface, the router module receiving each outbound IP frame from the
15	local area network interface and providing a corresponding translated outbound IP
16	frame to the wide area network interface;
17	the translated outbound IP frame comprising a translated IP client socket
18	comprising a gateway IP address and a global port number of the gateway that uniquely
19	associates with the IP client socket and:
20	the payload if the outbound IP frame is a data frame; and
21	translated payload if the outbound IP frame is a media session signaling
22	frame.
23	
1	2. The gateway of claim 1, wherein:
2	a media session signaling fame comprises at least one of:
3	a media session socket comprising the client IP address and a media port
4	number of the IP client; and
5	a signaling contact socket comprising the client IP address and a signaling

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6	port number and	
7	the translated payload comprises:	
8	a translated media session socket if the media session signaling fran	ne
9	includes a media session socket, the translated media session socket comprising	the
10	gateway IP address and a translated media port number that uniquely associated	with
11	the media session socket; and	
12	a translated signaling contact socket if the media session signaling f	rame
13	includes a signaling contact socket, the translated signaling contact socket comprise	ising
14	the gateway IP address and a translated signaling port number that uniquely asso	ciated
15	with the signaling contact socket.	
16		
1	3. The gateway of claim 2, wherein the router module further comprises a	
2	translation table for recording:	
3	the global port number in unique association with the IP client socket;	
4	the translated media port number in unique association with the media sess	sion
5	socket; and	
6	the translated signaling port number in unique association with the signaling	g
7	contact socket.	
8		
1	4. The gateway of claim 1, wherein:	
2	the router module comprises a frame handling module for comparing the	
3	payload of the outbound IP frame to a plurality of signaling frame pattern and	
4	determining that the outbound IP frame is a media session signaling frame if the	
5	payload matches a signaling frame pattern.	
6		
1	5. The gateway of claim 1, further comprising:	
2	a payload translation database for storing each signaling frame pattern in	
3	association with translation instructions; and	
4	a payload translation module for translating each socket of the payload that	t is

identified for translation in the translation instructions.

1	A gateway for exchanging IP frames with remote IP devices over a		
2	communication link to a frame switched network, the gateway comprising:		
3	a wide area network interface coupled to the communication link for exchanging		
4	the IP frames with the remote IP devices;		
5	a local area network interface for receiving outbound IP frames from each of a		
6	plurality of IP clients, each outbound IP frame comprising a local IP header and payload		
7	:		
8	the IP header comprising:		
9	an IP client socket comprising a client IP address and a client port		
10	number of the IP client; and		
11	a destination socket comprising a remote device IP address and a		
12	port number of a remote IP device; and		
13	the payload comprising:		
14	a media session socket comprising the client IP address and a		
15	media port number of the IP client;		
16	a router module coupled between the local area network interface and the wide		
17	area network interface, the router module receiving each outbound IP frame from the		
18	local area network interface and providing a corresponding translated outbound IP		
19	frame to the wide area network interface, the translated outbound IP frame comprising		
20	both a global IP header and translated payload:		
21	the global IP global header comprising a translated IP client socket		
22	comprising a gateway IP address and a global port number of the gateway that uniquely		
23	associates with the IP client socket;		
24	the translated payload comprising a translated media session socket		
25	comprising the gateway IP address and a translated media port number that uniquely		
26	associates with the media session socket; and		
27	the router module comprising a translation table for recording both:		
28	the IP client socket in association with the global port number; and		
29	the media session socket in association with the global media port		

30	number.
31	
1	7. A gateway for exchanging IP frames with remote IP devices over a
2	communication link to a frame switched network, the gateway comprising:
3	a wide area network interface coupled to the communication link for exchanging
4	the IP frames with the remote IP devices;
5	a local area network interface for receiving outbound IP frames from each of a
6	plurality of IP clients, each outbound IP frame comprising an IP header and payload, the
7	local IP header comprising:
8	an IP client socket comprising a client IP address and a client port number
9	of the IP client; and
10	a destination socket comprising a remote device IP address and a port
11	number of a remote IP device;
12	a router module coupled between the local area network interface and the wide
13	area network interface, the router module receiving each outbound IP frame from the
14	local area network interface and providing a corresponding translated outbound IP
15	frame to the wide area network interface, the router module comprising:
16	an IP layer translation module for:
17	generating the translated outbound IP frame in response to
18	receiving an outbound IP frame, the translated outbound IP frame comprising a global
19	IP header and payload, the global IP global header comprising:
20	a translated IP client socket comprising a gateway IP
21	address and a global port number of the gateway that uniquely associates with the IP
22	client socket; and
23	the destination socket; and
24	recording the IP client socket in association with the global port
25	number in a translation table;
26	an application layer translation module for:
27	generating translated payload in response to detecting that the

outbound IP frame comprises at least one of a media session socket and a signaling

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contact socket,	the translated	payload	comprising:
contact societi,	tile translated	payiouu	comprising.

a translated media session socket if the media session signaling frame includes a media session socket, the translated media session socket comprising the gateway IP address and a translated media port number that uniquely associated with the media session socket; and

a translated signaling contact socket if the media session signaling frame includes a signaling contact socket, the translated signaling contact socket comprising the gateway IP address and a translated signaling port number that uniquely associated with the signaling contact socket.

8. The gateway of claim 7, wherein the routing module further comprises a frame handling module for passing the outbound IP frame with the payload to the IP layer translation module in response to determining that the outbound IP frame is a data frame.

9. The gateway of claim 8, wherein the frame handling module compares the payload of the outbound IP frame to a plurality of signaling frame pattern to determine that the outbound IP frame is a media session signaling frame if the payload matches a signaling frame pattern.

10. The gateway of claim 7, wherein the routing module further comprises a translation table and the application layer translation module further provides for recording, in the translation table each of:

the global port number in unique association with the IP client socket;

the translated media port number in unique association with the media session socket; and

the translated signaling port number in unique association with the signaling contact socket.

11. A method of operating a gateway that supports multiple IP clients to effect the

2	exchange of IP frames between a plurality of IP clients and remote IP devices over a		
3	communication link to a frame switched network, the method comprising:		
4	receiving an outbound IP frame from each of a plurality of IP clients, each		
5	outbound IP frame comprising a local IP header and payload:		
6	the local IP header comprising:		
7	an IP client socket comprising a client IP address and a client port		
8	number of the IP client; and		
9	a destination socket comprising a remote device IP address and a		
10	port number of a remote IP device; and		
11	providing a corresponding translated outbound IP frame to the wide area network		
12	interface, the translated outbound IP frame comprising a translated IP client socket		
13	comprising a gateway IP address and a global port number of the gateway that uniquely		
14	associates with the IP client socket and:		
15	the payload if the outbound IP frame is a data frame; and		
16	translated payload if the outbound IP frame is a media session signaling		
17	frame.		
18			
1	12. The method of claim 11, wherein:		
2	a media session signaling fame comprises at least one of:		
3	a media session socket comprising the client IP address and a media port		
4	number of the IP client; and		
5	a signaling contact socket comprising the client IP address and a signaling		
6	port number and		
7	the translated payload comprises:		
8	a translated media session socket if the media session signaling frame		
9	includes a media session socket, the translated media session socket comprising the		
10	gateway IP address and a translated media port number that uniquely associated with		
11	the media session socket; and		
12	a translated signaling contact socket if the media session signaling frame		
13	includes a signaling contact socket, the translated signaling contact socket comprising		

14	the o	Inno-023 ateway IP address and a translated signaling port number that uniquely associated	
15	with the signaling contact socket.		
16	VVICII	the signaling contact socket.	
10	13.	The method of claim 12, further comprising recording, in a translation table:	
2	10.	the global port number in unique association with the IP client socket;	
3		the translated media port number in unique association with the media session	
4	sock	et; and	
5	SOCK	the translated signaling port number in unique association with the signaling	
6	cont	act socket.	
7	COITE	act socket.	
1	14.	The method of claim 11, further comprising:	
	17.	comparing the payload of the outbound IP frame to a plurality of signaling frame	
2	natta		
	patte	rns; and determining that the outbound IP frame is a media session signaling frame if the	
4	povle		
5	payio	pad matches a signaling frame pattern.	
6	15	The method of claim 11 further comprising:	
1	15.	The method of claim 11, further comprising:	
2		translating each socket of the payload by identifying translation instructions	
3	asso	ciated with each signaling frame pattern in a payload translation database.	
4	4.0		
1	16.	A method of operating a gateway that supports multiple IP clients to effect the	
2	exchange of IP frames between a plurality of IP clients and remote IP devices over a		
3	comi	nunication link to a frame switched network, the method comprising:	
4		receiving each outbound IP frames from each of a plurality of IP clients, each	
5	outb	ound IP frame comprising a local IP header and payload:	
6		the IP header comprising:	
7		an IP client socket comprising a client IP address and a client port	
8	num	per of the IP client; and	
9		a destination socket comprising a remote device IP address and a	
10	nort	number of a remote IP device: and	

11	the payload comprising:
12	a media session socket comprising the client IP address and a
13	media port number of the IP client;
14	providing a corresponding translated outbound IP frame to the wide area network
15	interface, the translated outbound IP frame comprising both a global IP header (152)
16	and translated payload:
17	the global IP global header comprising a translated IP client socket
18	comprising a gateway IP address and a global port number of the gateway that uniquely
19	associates with the IP client socket;
20	the translated payload comprising a translated media session socket
21	comprising the gateway IP address and a translated media port number that uniquely
22	associates with the media session socket; and
23	recording, in a translation table, both:
24	the IP client socket in association with the global port number; and
25	the media session socket in association with the global media port
26	number.
27	
1	17. A method of operating a gateway that supports multiple IP clients to effect the
2	exchange of IP frames between a plurality of IP clients and remote IP devices over a
3	communication link to a frame switched network, the method comprising:
4	receiving each outbound IP frames from each of a plurality of IP clients, each
5	outbound IP frame comprising an IP header and payload, the local IP header
6	comprising:
7	an IP client socket comprising a client IP address and a client port number
8	of the IP client; and
9	a destination socket comprising a remote device IP address and a port
10	number of a remote IP device;
11	providing a corresponding translated outbound IP frame to the wide area network
12	interface by a process of:
13	generating the translated outbound IP frame in response to receiving an

1.4	IMIO-UZ - outbound ID frame, the translated outbound ID frame comprising a global ID header and	
14	outbound IP frame, the translated outbound IP frame comprising a global IP header and	
15	payload, the global IP global header comprising:	
16	a translated IP client socket comprising a gateway IP address and	
17	a global port number of the gateway that uniquely associates with the IP client socket;	
18	and the destination socket; and	
19	generating translated payload in response to detecting that the outbound	
20	IP frame comprises at least one of a media session socket and a signaling contact	
21	socket, the translated payload comprising:	
22	a translated media session socket if the media session signaling frame	
23	includes a media session socket, the translated media session socket comprising the	
24	gateway IP address (156) and a translated media port number (164) that uniquely	
25	associated with the media session socket (127); and	
26	a translated signaling contact socket (155) if the media session signaling	
27	frame includes a signaling contact socket (124), the translated signaling contact socket	
28	(155) comprising the gateway IP address (156) and a translated signaling port number	
29	(166) that uniquely associated with the signaling contact socket (154).	
30		
1	18. The method of claim 17, further comprising generating the translated IP frame	
2	with the payload in response to determining that the outbound IP frame is a data frame.	
3		
1	19. The method of claim 18, wherein the step of determining whether the outbound	
2	IP frame is a media session signaling frame comprises comparing the payload of the	
3	outbound IP frame to a plurality of signaling frame pattern and determining that the	
4	outbound IP frame is a media session signaling frame if the payload matches a	
5	signaling frame pattern.	
6		
1	20. The method of claim 17, further comprising recording, in a translation table each	
2	of:	
3	the global port number in unique association with the IP client socket;	

the translated media port number in unique association with the media session

5	socket; and
6	the translated signaling port number in unique association with the signaling
7	contact socket.
8	
9	
10	